

REMARKS

The Official Action rejects Claims 1, 4, 6, 19-22, 25 and 26 under 35 U.S.C. §103(a) as being unpatentable over a published Japanese application to Yamada Hiroshi bearing Publication No. JP 06229426 in view of U.S. Patent No. 6,296,393 to Toshikazu Yabe, et al. and in further view of a published European application bearing Publication No. EP000223268. The Official Action also rejects Claims 7, 8, 20, 23, 24, 27 and 28 under 35 U.S.C. §103(a) as being unpatentable over the '426 Japanese application in view of the Yabe '393 patent and the '268 European application and further in view of U.S. Patent No. 3,974,988 to Samuel Whitworth. The Official Action rejects the remainder of the claims, that is, Claims 2, 5, 9 and 12, under 35 U.S.C. §103(a) as being unpatentable over the '426 Japanese application in view of the Yabe '393 patent and the '268 European application and further in view of U.S. Patent No. 6,280,095 to Akimi Furukoshi et al. As described in detail below, independent Claims 1, 7, 19 and 20 have been amended to highlight further patentable distinctions relative to the cited references and remarks are provided below to traverse the rejections to the extent that the rejections would be applied to the amended set of claims. As a result of the amendments to the independent claims, dependent Claims 2 and 9 have been amended and dependent Claims 22, 24, 26 and 28 have been canceled. In light of the foregoing amendments and the following remarks, Applicants respectfully request reconsideration of the present application and allowance of the amended set of claims.

Independent Claims 1 and 19 describe a bearing assembly having a pair of bearing members that are movable relative to one another. The pair of bearing members includes first and second members that define a space therebetween. The bearing surface of at least the first member has a coating of a thermosetting polytetrafluoroethylene-based resin material having a thickness of about 0.003-0.007 inch. The coating is also defined to include solid particulates embedded in a stabilizer material. As now recited by amended independent Claims 1 and 19, the coating of the polytetrafluoroethylene-based resin material extends continuously along the bearing surface of the first member. The bearing assembly of independent Claims 1 and 19 also includes a grease lubricant that occupies the space between the first and second members such

that the polytetrafluoroethylene-based resin material and the grease lubricant act in conjunction with one another to lubricate the first and second members. As a result of the continuity of the coating, however, the grease lubricant is separated from the bearing surface of the first member by the coating of the polytetrafluoroethylene-based material.

Independent Claims 7 and 20 recite a bearing assembly for a truck pivot joint bearing in an aircraft landing gear. The bearing assembly includes the metallic truck assembly defining an opening and a pin rotatably positioned in the opening of the truck assembly. The bearing assembly also includes a truck pivot bushing positioned at least partially in the opening defined by the truck assembly. The truck pivot bushing has an inner surface proximate the pin such that a space is defined between the inner surface of the truck pivot bushing and the pin. At least a portion of the inner surface of the truck pivot bushing has a coating of a thermosetting, self-lubricating, greaseless polyester resin material with a thickness of about 0.003-0.007 inch. This coating also includes solid particulates embedded in a stabilizer material. As now recited by amended independent Claims 7 and 20, the coating of the self-lubricating, greaseless polyester resin material extends continuously along the inner surface of the truck pivot bushing. As further recited by independent Claims 7 and 20, the bearing assembly also includes a grease lubricant occupying the space between the pivot bushing and the pin. As a result of the continuity of the coating, however, the grease lubricant is separated from the inner surface of the truck pivot bushing by the coating of the self-lubricating, greaseless polyester resin material.

As described by the present application and by the prior Amendment, the provision of a layer of greaseless material having the claimed thickness range has the surprising technical effect of allowing dynamic bearing pressures to be increased dramatically to a level that approaches the allowable pressures for the base bearing material. Accordingly, the bearing assembly of the present invention may operate longer under extreme conditions and may require reduced maintenance than conventional bearing assemblies.

The primary reference is a published Japanese application for which Applicants previously provided a machine translation. The '426 Japanese application describes a roller bearing having a plurality of balls **3** disposed between an inner ring **1** and an outer ring **2**. The

roller bearing also includes holders **4** for circumferentially positioning the balls between the inner and outer rings. As described by the '426 Japanese application, the inner surfaces of the inner and outer rings and the ball may be coated with polytetrafluoroethylene (PTFE). See, for example, coatings **1a**, **2a** and **3a**. Moreover, the space between the inner and outer rings in which the balls reside may be sealed by shield plates **5** and the space between the inner and outer rings that is not already filled with the balls may be filled with a fluorine-type vacuum grease **6**.

The '426 Japanese application describes the PTFE coatings to consist of a plurality of islands, separated by recesses. As shown by Figures 2 and 5, for example, the PTFE coatings are not continuous, but are formed of a plurality of discrete islands. As such, particulates in the grease that would otherwise be ground up through contact between the balls and the rings and released as dust (see Figure 6) are now trapped in the recesses between islands of the PTFE coating, thereby advantageously reducing the dust produced during operation.

As such, the '426 Japanese application does not teach or suggest a continuous coating of a thermosetting polytetrafluoroethylene-based resin material upon the bearing surface of the first member in accordance with amended independent Claims 1 and 19 or a continuous coating of a thermosetting, self-lubricating, greaseless polyester resin material upon the inner surface of the truck pivot bushing in accordance with amended independent Claims 7 and 20. Instead, the '426 Japanese application describes a coating to be formed of a plurality of islands spaced apart from one another to facilitate the trapping of dust therebetween. Since the '426 Japanese application lacks a continuous coating, the '426 Japanese application also fails to teach or suggest that the grease lubricant is separated from the bearing surface of the first member by the coating of the polytetrafluoroethylene-based material as set forth by amended independent Claims 1 and 19 or that the grease lubricant is separated from the inner surface of the truck pivot bushing by the coating as set forth by amended independent Claims 7 and 20.

The other references also fail to teach or suggest a bearing assembly that includes a continuous coating of a bearing surface with a thermosetting polytetrafluoroethylene-based resin material as in Claims 1 and 19 or with a thermosetting, self-lubricating, greaseless polyester resin material as in Claims 7 and 20, and a grease lubricant that is separated from the bearing surface

by the continuous coating. Indeed, the other references were cited for their alleged disclosure of other features of the claimed invention. Thus, Applicants submit that the bearing assembly of amended independent Claims 1, 7, 19 and 20 is not taught or suggested by the cited references, taken either individually or in combination.

Additionally, independent Claims 1, 7, 19 and 20, as now amended, recite that the coating includes solid particulates embedded in a stabilizer material. As this feature of the bearing assembly has been added by the current amendments, none of the references have been put forth so as to disclose this feature and this feature is therefore submitted to further patentably distinguish the claimed invention from the cited references, taken either individually or in combination.

For each of the foregoing reasons, it is submitted that independent Claims 1, 7, 19 and 20 are patentably distinct from the cited references, taken individually or in combination. As such, the rejections of the independent claims under 35 U.S.C. §103(a) are therefore overcome. As the dependent claims include all of the recitations of a respective independent claim, the dependent claims are patentably distinct from the cited references for the same reasons as set forth above in conjunction with the independent claims. However, several of the dependent claims include recitations that provide an additional basis by which the dependent claims are patentably distinct from the cited references.

For example, dependent Claims 2 and 9 recite that the solid particulate in the coating is either flocked, powdered, fibrous, flaked or beaded. The Official Action continues to cite the Furukoshi '095 patent for its apparent disclosure of such forms of solid particulates within a coating, such as a PTFE coating. Although Applicants' undersigned representative has reviewed the Furukoshi '095 patent, no reference to the form of particulates included within a coating, such as a PTFE coating, was discovered, including in the portion of the Furukoshi '095 patent cited by the Official Action. Thus, Applicants submit that the recitations of dependent Claims 2 and 9 also further patentably distinguish the claimed invention from the cited references including the Furukoshi '095 patent. Moreover, if the Examiner continues to maintain this

rejection, it is respectfully requested that the Examiner provide more specificity as to the language within the Furukoshi '095 patent upon which the Examiner is relying.

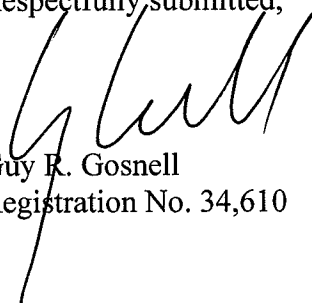
For each of the foregoing reasons, Applicants submit that the rejections of the dependent claims under 35 U.S.C. §103(a) are also overcome.

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Conclusion

In view of the amendments to the claims and the remarks presented above, it is respectfully submitted that all of the claims of the present application are in condition for immediate allowance. It is therefore respectfully requested that a Notice of Allowance be issued. The Examiner is encouraged to contact Applicants' undersigned attorney to resolve any remaining issues in order to expedite examination of the present application. It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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